

James Hays

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Research Interests

My primary research interest is massively data-driven, image-based graphics and vision. This includes image completion, scene understanding, texture synthesis, texture analysis, or any technique that allows the intelligent use of images.

Publications

James Hays and Alexei Efros

"IM2GPS: estimating geographic information from a single image"

IEEE Conference on Computer Vision and Pattern Recognition (CVPR) 2008.

Yanxi Liu, Tamara Belkina, James Hays, and Roberto Lublinerman

"Image De-fencing"

IEEE Conference on Computer Vision and Pattern Recognition (CVPR) 2008.

James Hays and Alexei Efros

"Scene Completion Using Millions of Photographs"

ACM Transactions on Graphics (SIGGRAPH 2007)

Eugene Zhang, James Hays, and Greg Turk

"Interactive Tensor Field Design and Visualization on Surfaces"

IEEE Transaction on Visualization and Computer Graphics, 2007, Vol 13(1), pp 94-107.

James Hays, Marius Leordeanu, Alexei Efros, and Yanxi Liu

"Discovering Texture Regularity as a Higher-Order Correspondence Problem"

European Computer Vision Conference (ECCV) 2006.

Wen-Chieh Lin, James Hays, Chenyu Wu, Vivek Kwatra, and Yanxi Liu

"Quantitative Evaluation of Near Regular Texture Synthesis Algorithms"

IEEE Conference on Computer Vision and Pattern Recognition (CVPR) 2006.

Yanxi Liu, James Hays, Ying-Qing Xu, and Harry Shum

"Digital Papercutting"

SIGGRAPH 2005 Sketches.

Yanxi Liu, Wen-Chieh Lin, and James Hays
"Near-regular Texture Analysis and Manipulation"
ACM Transactions on Graphics (SIGGRAPH 2004), 23(3), August 2004.

James Hays and Irfan Essa
"Image and Video-based Painterly Animation"
Non-Photorealistic Animation and Rendering 2004 (NPAR '04). pp. 113-120.

Education

Carnegie Mellon University, Pittsburgh, Pennsylvania
Fall 2003 to present
Ph.D. student in Computer Science Department
Member of Graphics lab, advised by Dr. Alexei Efros

Georgia Institute of Technology, Atlanta, Georgia
Fall 1999 to Spring 2003.
B.S. in Computer Science. *Highest honors*

Awards

National Science Foundation Graduate Research Fellowship, Summer 2004 to Spring 2008.
College of Computing Outstanding Undergraduate Researcher, Spring 2003.
President's Undergraduate Research Award, Fall 2002.
Won Undergraduate Research Symposium, Spring 2002.
Intel Undergraduate Research Award, Summer 2001.

Activities

Journal Reviewer:

IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI), ACM SIGGRAPH, ACM Transactions on Graphics (ToG), IEEE Computer Graphics and Applications (CGA), IEEE Transactions on Visualization and Computer Graphics (TVCG), The Visual Computer

Conference Reviewer:

IEEE Conference on Computer Vision and Pattern Recognition (CVPR), European Conference on Computer Vision (ECCV), ACM SIGGRAPH, ACM SIGGRAPH Asia, ACM SIGCHI (Computer-Human Interaction), Eurographics, Eurographics Symposium on Rendering, Non-photorealistic animation and Rendering (NPAR)

Teaching Experience

Teaching Assistant for 15-463 Rendering and Image Processing, Carnegie Mellon University
September 2004 to December 2004.
Teaching Assistant for 15-462: Computer Graphics, Carnegie Mellon University
January 2004 to May 2004.

Prepared assignments, gave guest lecture, graded.
Volunteer Tutor for Georgia Tech Office of Minority Education
Spring 2002
Tutored students for introductory Computer Science classes.
Senior Teaching Assistant for CS1321, Georgia Tech
Fall 2001.
Taught recitation, managed seven TA's and over 170 students, helped prepare course material.
Teaching Assistant for CS1311x, Georgia Tech
Fall 2000, Spring 2001.
Taught recitation, managed one section of students.

Talks

"Scene Completion Using Millions of Photographs". UIUC, September 2007.
"Scene Completion Using Millions of Photographs". MIT, July 2007.
"Lots of Data" Panelist. Lake Como Workshop, May 2008.
"IM2GPS: estimating geographic information from a single image". CMU VASC seminar, June 2008.
"Image-based Graphics and Vision". CMU Andrew's Leap high school program, July 2008.

Press Coverage

MSNBC: *Software turns photos from bad to good*
BBC News: *Photo tool could fix bad images*
Daily Mail: *Picture Perfect - the software that fixes your dodgy holiday snaps*
The Independent: *Instant makeup: Perfect your holiday snaps*
USA Today: *Researchers try Google photo tactic*
ZDNet: *Using Flickr to edit your photos*
CNET: *Researchers try Google approach to understanding photos*
Digg: *Algorithm draws on millions of images to seamlessly fill blanks in photos*
Slashdot: *Algorithm Seamlessly Patches Holes In Images*

Ars Technica: *Using Flickr to teach computers to identify pictures*
ZDNet: *Finding where a photo has been shot*
CNET: *New geotagging method draws on Flickr photos*
Chronicle of Higher Education: *New Software Can Tell Where a Photo Was Taken*
Digg: *Using Flickr to teach computers to identify pictures*
Slashdot: *Computer Scientists Scour Your Holiday Photos*

Television

Local CBS affiliate KDKA: *Student Develops Picture Location Technology*
Local ABC affiliate WTAE: *Plugged in: IM2GPS Estimates Where Photos are Taken in The World*

Books

Cynthia Baron: *Adobe Photoshop Forensics: Sleuths, Truths, and Fauxtography*. pp. 264-266.